Top 10 Utah Geospatial Resources for GIS Professionals

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As we await the development of our new website (April '11) that will present this information more cohesively, here is a list of some of the most important geospatial resources available to GIS users doing work in or related to Utah. Each item in the list contains a summary and links to the resource or more information describing it.

1. Aerial Photography via ImageServerHigh resolution aerial photography is a critical foundation for GIS users but a statewide mosaic of imagery almost demands that you have your own high end storage solution. The SGID ImageServer eliminated the need to maintain your own imagery collection by providing statewide aerial photography, hillshade, and scanned maps services to ArcMap user via a high speed internet connection. Very easy to use.For ArcMap 9.3 or 10 users:Open the Customize window/mode,
Click the Commands tabSelect the Image Server category and drag the Add Image Server Connection button on to the standard toolbar next to the yellow and black 'Add Data' buttonClose the Customize window and click on the Add Image Server Connection button.For Server Name, type in: image.agrc.utah.gov
Browse the folders for an image service of your choice, click Add and then OK
Notes:

2009 aerial photography is available at 1 meter resolution statewide and 1 foot resolution in Utah's urban core and several outlying areas (Cache County, Canyonlands/Moab area). 2006 1 foot photography has a larger footprint including along most of the state and federal highway system.The Elevation --> Hillshade_10Meter4Wayr services provides the best cartographic hillshade/terrain displayUSGS Topographic Maps are available under the ScannedMaps folder available via an ImageServer connection
More information on ImageServer including open port requirements.

2. Base Map Cache Services Need a quick, fast base map for your ArcMap project? AGRC provides several multi-scale base map service options that deliver pre-rendered base map tiles to your ArcMap session as fast as your internet connection will allow. Options include:Streets and Land Ownership (UtahBaseMap-Vector)Streets, Aerial Photography Hybrid (UtahBaseMap-Hybrid)Aerial Photography (UtahBaseMap-Imagery2009)USGS Topographic Maps with Hillshade (UtahBaseMap-Topo)Terrain (UtahBaseMap-Terrain)Coming Soon, Muted-tone vector (UtahBaseMap-Lite) Simple step by step instructions for ArcMap 9.3 or 10 users shows how to add theUtahBaseMap-Topo service but can be used to add any of the other services above.Web developers can embed any of these base map services in web-based and internet-connected applications (example)

3. Utah's State Geographic Information Database (SGID)
Formalized in Utah Code (UCA 63F-1-507) in 1991, the SGID is the official repository for geospatial data created and managed by state agencies. Currently the SGID contains over 400 layers of vector format GIS information and a large collection of raster data in the form or color, b/w, and color-infrared aerial photography, scanned maps, and lidar and other elevation data. Data in the SGID is generally in UTM Z12N NAD83 geographic coordinates.Some 400+ data layers in the SGID are more current, complete, and/or usable than others. It is recommended that you familarize yourself with the data holdings (see links below under #5) and, in particular, these framework or otherwise noteworthy layers for starters:SGID93.Bioscience.SWReGAPLandCover
(Vegetation)SGID93.Boundaries.CountiesSGID93.Boundaries.MunicipalitiesSGID93.Boundaries.ZipCodesSGID93.Cadastral.Parcels_* (parcel geometry, id and address, updated annually for each county) SGID93.Cadastral.LandOwnership (contains boundaries of BLM, USFS, NPS, USFWS, SITLA, State Parks, and Tribal Lands plus designated wilderness and placename labels)
SGID93.Cadastral.PLSS* (currently undergoing update & reorganization, announcement expected
soon) SGID93.Demographic.* (Census-related datasets)SGID93.DNROilGasWells (updated nightly)
SGID93.Environment.* (cleanup site data updated nightly from
DEQ)SGID93.Geoscience.SoilsSGID93.Planning.WaterRelatedLandUse (statewide water use classification)
SGID93.Political.* (current state office and congressional districts)SGID93.Transportation.Roads (state centerline dataset) MORE INFO
SGID93.UDOTRoutes_LRS (UDOT route system and ramps)
SGID93.Water.LakesNHDHighResSGID93.Water.StreamsNHDHighResSGID93.Water.WetlandsWhether local, regional, state, federal, public or private, if your organization would like to contribute data to be hosted within the SGID, please contact Bert Granberg at AGRC (bgranberg@utah.gov).

4. Use a Live Connection to the SGID Vector Data Holdings Using an ArcMap Database Connection Hard drives are for managing your own data, not for trying to collect a big pile of data being maintained by others. In this spirit, if you have a high speed internet connection (open to traffic on port 5151) you can connect directly to the SGID93 vector database to use all of the feature classes as if they were on your local computer. The big benefits for doing so are that you connect to the most current data, your hard drive won't fill up as fast, and all the data is available in the same place.
- Here's how to connect to SGID via a ArcSDE Database Connection.

5. Download Data from the SGID ftp Server In some cases (slow internet, field work where no internet is available, need for local editing, piece of mind, etc) it may be better to have the SGID data stored locally. In these cases, all of the SGID vector and raster data can be accessed from the SGID ftp server. Vector data is available at statewide extent or clipped to county boundaries and in both shapefile and 9.3 file geodatabase formats. Raster data is available in a number of different formats and tile-sizes depending on the specific product.More information:View SGID Vector Data Layer List and Download from SGID ftp server:- All Layers, By Category
- All Layers, By Name
Download SGID Raster Data via ftp or Interactive Map- Raster
- Topographic Maps
- Elevation

6. Web and Map ServicesUsing .NET, Java, and other programming languages, the use of web-based geospatial services opens many possibilities. AGRC has built many custom services that allow developers to integrate the power of the SGID data library into custom web and desktop applications. Services hosted on mapserv.utah.gov include map display, spatial query, address location, and others. Most of these services were initially developed for, and now actively used by custom geospatial applications developed by AGRC for other agencies. As an example, the Utah Broadband Map is built almost exclusively from widgets that utilize SGID web services to provide background map options, address location, map search for geographic features, and map click-based spatial queries.All map and web services are based on the native coordinate system of the SGID (UTM Z12N NAD83) although some services have some lat/long capability.

7. Address Location (aka Geocoding)AGRC has worked extensively with local government, the Utah 911 Committee, UDOT, Blue Stakes of Utah, and other partners to develop SGID93.Transportation.Roads, the statewide road centerline GIS dataset. This dataset contains cartographic codes (CFCC), UDOT route system attributes, and range-based address components necessary for traditional geocoding operations. A composite address locator file is available that finds addresses against 3 levels of aliasing including highway system (Highway 68) address coordinate system aliases (ex. 1700 W for Redwood Rd). An internet connection is required for this locator file as it directly references the source data via database connection. The same locator is utilized by AGRC's address location web service although more pre-submission match logic is available via the web service. Address point locators are expected by early Spring 2011.8. High Precision GPS
The Utah Reference Network GPS (TURNGPS) is a low cost service that allows high-precision GPS data to be collected from a mapping or survey-grade GPS unit in real time. A network of over 60 base station located around the state enable engineering, construction, mapping, and surveying professions to precisely measure locations, eliminating hours of establishing control and post-processing for each field session. The cost of the service is $400/device/year.More information and base station map for TURNGPS. 9. Breaking News from the Utah GIS Portal Anytime we've got additions, updates or other news to report regarding the SGID or the services maintained by AGRC, we'll post a short article detailing the changes at gis.utah.gov. You can see the newest posts on the 'Latest Content' section of the page or you can subscribe to these via: RSS feed using, for example Google Reader (just click the RSS icon at the bottom of the front pageFollow the AGRC Twitter account @UtahAGRC

10. Connect with Your Colleagues The Utah Geographic Information Council (UGIC) is a non-profit statewide GIS user group that hosts the state's annual GIS conference (this year in Logan, April 4-8, 2011). The conference or UGIC's subcommittees on data standards, conference planning, and education (GIS day activities) are excellent ways to network with your fellow GIS professionals. Registering to be a UGIC member is free and easy...it's just a check box on the Utah GIS Portal user registration and you can check or uncheck at any time.Local GIS user groups allow smaller groups of users to network and exchange technical knowledge. Currently there are local users groups for Salt Lake Valley (SLUG), Utah Valley, Central Counties, SW Utah, Canyon County (SE Utah), Bear River (N Utah), Davis County, and Uintah Basin .
Another resource currently available is the Utah GIS Portal's User Lists. This function, accessible allows registered users to login to the site and explore User Lists by interest area or employment sector (county, city, state, federal, private, higher ed), sorted alphabetically by name or organization.

Other: Communication and FeedbackHave valuable information to share with your colleagues? Write a post for the GIS Portal and we'll publish it under your by line (no commercial plugs please).Email your article and supporting documents/imagesHave questions or comments about anything related to GIS or mapping in Utah?Email your questions and feedback